Overview

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Target Audience

- This training is designed for those who will collect and analyze Patient Safety Component data or enroll a hospital into NHSN

  This includes:
    - NHSN Facility Administrator
    - Patient Safety Primary Contact
    - Infection Control Professional (ICP)
    - Epidemiologist
    - Microbiologist
    - Pharmacist
    - Data entry staff

Objectives

1. Describe NHSN and its purposes
2. Define the authority and confidentiality protections for NHSN
3. Identify the requirements for participating in the Patient Safety Component
4. Describe the NHSN surveillance methodology
5. List the modules of the Patient Safety Component
6. Explain key terms used in the Patient Safety Component
7. Describe the Monthly Reporting Plan

National Healthcare Safety Network (NHSN)

- NHSN is an internet-based surveillance system that integrates the surveillance systems previously managed separately in the Division of Healthcare Quality Promotion (DHQP) at CDC
  - National Nosocomial Infections Surveillance (NNIS) system
  - Dialysis Surveillance Network (DSN)
  - National Surveillance System for Healthcare Workers (NaSH)

Purposes of NHSN

- Collect data from a sample of US healthcare facilities to permit valid estimation of the
  - magnitude of adverse events among patients and healthcare personnel
  - adherence to practices known to associated with prevention of healthcare-associated infections (HAI)
- Analyze and report collected data to permit recognition of trends

Purposes of NHSN

- Provide facilities with risk-adjusted data that can be used for inter-facility comparisons and local quality improvement activities
- Assist facilities in developing surveillance and analysis methods that permit timely recognition of patient and healthcare personnel safety problems and prompt intervention with appropriate measures
- Conduct collaborative research studies with members

Authority and Confidentiality for NHSN

- Public Health Service Act (42 USC 242b, 242k, and 242m(d))
- Confidentiality Protection
  - Sections 304, 306, and 308(d) of the PHS Act

"The information contained in this surveillance system that would permit identification of any individual or institution is collected with a guarantee that it will be held in strict confidence, will be used only for the purposes stated, and will not be disclosed or released without the consent of the individual, or the institution in accordance with Sections 304, 306, and 308(d) of the Public Health Service Act (42 USC 242b, 242k, and 242m(d))."

Data Collection and Reporting Requirements for Patient Safety Component

1. Submit a Monthly Reporting Plan to inform CDC which, if any, of the patient safety modules will be used for that month

2. Adhere to the selected module's protocol(s) exactly as described in the *NHSN Manual: Patient Safety Component Protocol*

Data Collection and Reporting Requirements for Patient Safety Component

(continued)

3. Use surveillance methodology as described in the Protocol (detailed in the next section)

4. Report events and appropriate summary or denominator data indicated on the Plan to CDC within 30 days of the end of the month

Data Collection and Reporting Requirements for Patient Safety Component

(continued)

5. Submit data for at least one module for a minimum of 6 months of the calendar year

6. Complete an annual survey for your facility

7. Pass quality control acceptance checks that assess the data for completeness and accuracy

Data Collection and Reporting Requirements for Patient Safety Component

(continued)

8. Agree to report to state health authorities adverse event outbreaks identified in the facility by the surveillance system and about which you are contacted by CDC.

Failure to comply with these requirements will result in removal from the NHSN

Staffing Requirements for Participating in the PS Component

- There are no specific FTE requirements, but a trained Infection Control Professional (ICP) or Hospital Epidemiologist should oversee the HAI surveillance program

- Other personnel can be trained to
  - Screen for events (e.g., infections)
  - Collect denominator data
  - Collect infection prevention practices (process measure) data
  - Enter data
  - Analyze data

NHSN Surveillance Methodology

- Active

- Patient-based

- Prospective

- Priority-directed

- Risk-adjusted rates

- Incidence rates

NHSN Surveillance Methodology

ACTIVE vs. PASSIVE

- **ACTIVE** Trained personnel use standard definitions and a variety of data sources to identify events

- **PASSIVE** Personnel, such as staff nurses, not trained to do surveillance report events

NHSN Surveillance Methodology

PATIENT-BASED vs. LABORATORY-BASED

- **PATIENT-BASED** Monitoring patients for events, risk factors, and procedures and practices related to patient care
  - Visit patient care areas
  - Review patient charts
  - Discuss with caregivers

- **LABORATORY-BASED** Case-finding based solely on positive lab findings

NHSN Surveillance Methodology

PROSPECTIVE vs. RETROSPECTIVE

- **PROSPECTIVE** Monitoring patients while still in the institution; includes post-discharge period for SSI

- **RETROSPECTIVE** Case-finding based solely on chart review after patient discharged

NHSN Surveillance Methodology

PRIORITY-DIRECTED vs. COMPREHENSIVE

- **PRIORITY-DIRECTED** Objectives for surveillance are defined and focused on specific events, processes, organisms, and/or patients/populations

- **COMPREHENSIVE** Continuous monitoring of all patients for all events and/or processes

NHSN Surveillance Methodology

RISK-ADJUSTED vs. CRUDE RATES

- **RISK-ADJUSTED** Rates are controlled for variations in the distribution of major risk factor(s) associated with an event's occurrence

  – Comparison of rates is useful

- **CRUDE** Rates assume equal distribution of risk factors for all events

  – Comparison of rates not recommended

NHSN Surveillance Methodology

INCIDENCE RATES vs. PREVALENCE RATES

- **INCIDENCE** (I)
  New events in a population occurring during some defined time period

$$I = \frac{\text{new events}}{\text{population during time period}}$$

- **PREVALENCE** (P)
  All events in a population occurring at either a point in time (P_{point}) or during some defined time period (P_{period}).

$$(P_{point}) = \frac{\text{new and existing events}}{\text{population at a point in time}}$$

$$(P_{period}) = \frac{\text{new and existing events}}{\text{population during time period}}$$

Patient Safety Component Modules

```
                    ┌─────────────────┐
                    │     Patient     │
                    │      Safety     │
                    │    Component    │
                    └─────────────────┘
              ┌──────────────┼──────────────┐
    ┌─────────────┐  ┌─────────────┐  ┌─────────────┐
    │   Device-   │  │  Procedure- │  │ Medication- │
    │  associated │  │  associated │  │  associated │
    │    Module   │  │    Module   │  │    Module   │
    └─────────────┘  └─────────────┘  └─────────────┘
```

Patient Safety Component Modules

Device-associated

CLABSI | CLIP | VAP | CAUTI | DE
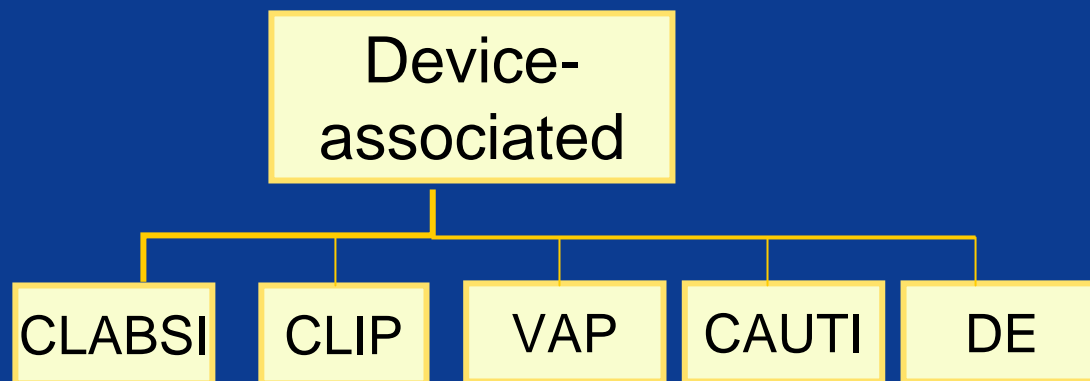
CLABSI	Central line-associated bloodstream infection
CLIP	Central line insertion practices adherence
VAP	Ventilator-associated pneumonia
CAUTI	Catheter-associated urinary tract infection
DE	Dialysis Event

Patient Safety Component Modules
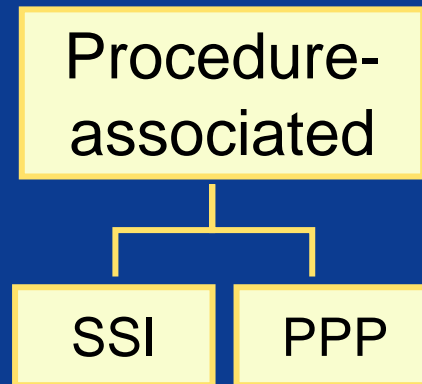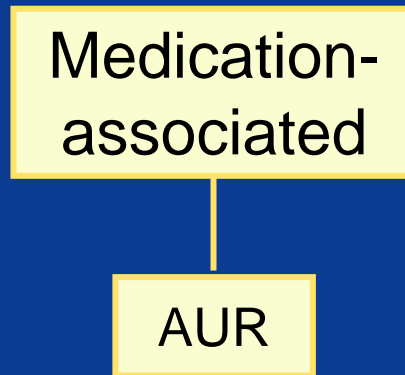

SSI   **Surgical site infection**

PPP   **Post-procedure pneumonia**

Patient Safety Component Modules

Medication-associated

AUR

AUR   **Antimicrobial use and resistance option**

Patient Safety Component Key Terms

- Healthcare-associated Infection (HAI)

- Location
  - CDC Location
  - 80% Rule

- Attribution of HAI
  - Facility-level
  - Location-level for device-associated HAI
  - Procedure-level for procedure-associated HAI

  NHSN Key Terms can be found in the *NHSN Manual: Patient Safety Component Protocol*

Healthcare-associated Infection (HAI)

- A localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that
  - Occurs in a patient in a healthcare setting and
  - Was not present or incubating at the time of admission, unless the infection was related to a previous admission

- When the setting is a hospital, meets the criteria for a specific infection (body) site as defined by CDC

- When the setting is a hospital, may also be called a nosocomial infection

Location

- In the Patient Safety Component, location is the area where a patient was assigned while receiving care in the healthcare facility

  – Inpatient location: Area where patients are housed overnight

- For DA Module surveillance of events, only inpatient locations where denominator data can be collected are eligible for monitoring (e.g., ICU, ward)

  – Examples of locations <u>not</u> eligible: operating room, interventional radiology, emergency department, etc

- For DA Module process measure surveillance, location is the area where the patient was assigned when the practice under surveillance was performed

Location

- Location is used to stratify device-associated infection rates

- A location may treat patients for more than one clinical service

CDC Locations

- A list of standard descriptions for patient care and other areas of healthcare facilities

  – List can be found in the *NHSN Manual: Patient Safety Component Protocol*

- Each location under surveillance must be "mapped" to one standard CDC Location description

- The correct mapping to a CDC Location is determined by the type of patients receiving care

  – 80% Rule: 80% of the patients must be of a consistent type to classify the location as that specific type

CDC Location

80% Rule

Example
If 80% of patients on a ward are pediatric patients with orthopedic problems, the location is designated as an Inpatient Pediatric Orthopedic Ward.

EXCEPTION
For patient care areas where the mix of medical and surgical patients is approximately equal, use the combined medical/surgical location designation.

- For instructions on setting up locations in NHSN, refer to the training "NHSN Enrollment and Facility Start-up".

Attribution of HAI

- Once an HAI is identified, the next step is to determine the level of attribution

- The three levels of attribution are:

  - Facility-Level

  - Location-Level

  - Procedure-Level

Attribution of HAI: Facility-Level

- When a patient is admitted to a facility with an HAI, determine whether or not to attribute the HAI to this facility.

Examples

Patient is discharged from Hospital A and returns 15 hours later to Hospital A with an HAI. This is an HAI for Hospital A.

Patient is admitted to Hospital B with an infection which was determined to be attributed to Hospital A. This is an HAI for Hospital A, not Hospital B.

Attribution of Device-associated HAI: Location-Level

- A device-associated HAI is attributed to the inpatient location where the patient was assigned on the date the HAI was identified

Example

Patient has a central line inserted in the Emergency Department and then is transferred to the MICU. Within 24 hours of admission to the MICU, patient meets criteria for BSI. This is reported to NHSN as a CLABSI for the MICU.

Attribution of Device-associated HAI: Location-Level

- **EXCEPTION**: Transfer Rule
  - If a device-associated HAI develops within 48 hours of transfer from one inpatient location to another in the same facility, the HAI is attributed to the transferring location.

  Example

  Patient with a central line is transferred from the surgical ICU to an orthopedic ward and develops a BSI within 24 hours. This CLABSI is attributed to the surgical ICU.

Attribution of Procedure-associated HAI

Procedure-associated HAIs
are attributed to the procedure
NOT the location

Monthly Reporting Plan

- The Monthly Reporting Plan informs CDC which modules a facility is following during a given month

- A facility must enter a Plan for every month of the year, even those in which no modules are followed

- A facility may enter data only for months in which Plans are on file

Monthly Reporting Plan Options

Choose either:

- Enter a Plan that conforms to one or more of the modules of the Patient Safety Component

  or

- Enter a "No Patient Safety Modules Followed" option

Example Plan that conforms to modules of the Patient Safety Component

Example Plan that conforms to the "No Patient Safety Modules Followed" option

Mandatory fields marked with *

Facility ID*: DHQP Memorial Hospital (ID 10000) ▼

Month*: April ▼

Year*: 2008 ▼

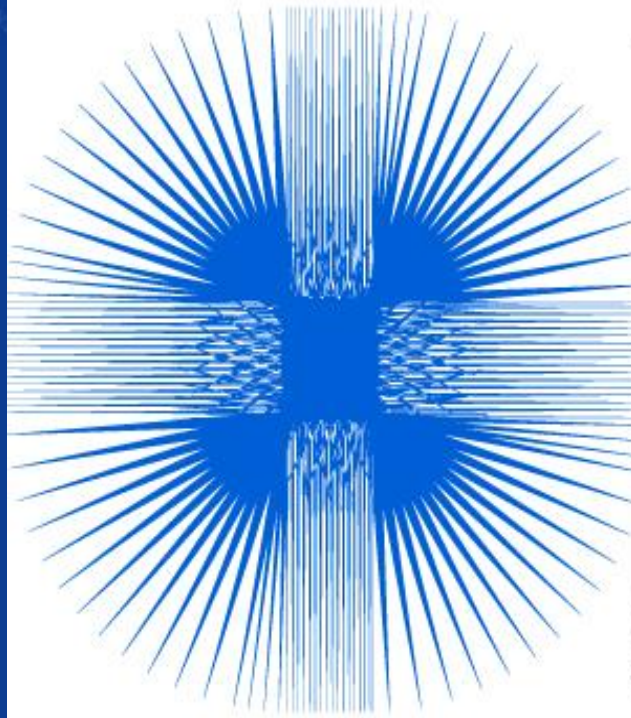☑ No NHSN Patient Safety Modules Followed this Month

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References

- For more information about these topics, refer to the NHSN website
  - *NHSN Manual: Patient Safety Component Protocol* located at
    http://www.cdc.gov/ncidod/dhqp/nhsn_members.html
    - Tables of instruction for completing all forms
    - Key terms
    - CDC location codes
    - Operative procedure codes
  - Purposes, data collection requirements and assurance of confidentiality
  - NHSN data collection forms

http://www.cdc.gov/ncidod/dhqp/nhsn.html